



Andrew Seohwan Yu

Machine learning researcher specializing in
generative vision models and medical image analysis

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Education

Case Western Reserve University

- PhD Candidate in Computer Science
- Qualifying Exam: Evaluation of Image Generative Models
- Current Estimated GPA 3.32/4.00

Cleveland, OH

2021 - Dec 2025 (expected)

Dec 2023

Cleveland State University

- Master of Computer and Information Sciences
- Thesis: NBA Basketball Analytics with ML
- *Magna Cum Laude*, GPA 3.61/4.00

Cleveland, OH

2014 - 2017

Kent State University

- Bachelor of Science, Integrated Life Sciences
- *Magna Cum Laude*, GPA 3.74/4.00

Kent, OH

2009 - 2011

Research

Cleveland Clinic, Lerner Research Institute

- Advisor: Xiaojuan Li
- Unsupervised segmentation of musculoskeletal lesions in MRIs using anomaly detection
- Medical image analysis and radiomics to find biomarkers for osteoarthritis

Cleveland, OH

2021 - Present

Case Western Reserve University

- Advisor: Vipin Chaudhary
- Comparison and evaluation of generative models (diffusion models, GANs, VAEs)
- Fine-tuning foundational generative models for small-domain tasks

Cleveland, OH

2021 - Present

Technical Skills

Core ML and Data Science: python, pytorch, scikit-learn, torchvision, lightning, pandas, huggingface, accelerate,

MLOps, Deployment and Visualization: wandb, gradio, docker, matplotlib, seaborn, plotly

Medical Imaging: monai, ants, nibabel, simpleitk, pydicom, pyradiomics, scikit-image, opencv

Programming Languages: Python, Unreal Engine, Kotlin (Android), Dart (Flutter), C, C++, bash, Java

Select Publications

Unsupervised Segmentation of Knee Bone Marrow Edema-like Lesions Using Conditional Generative Models. Andrew Seohwan Yu, Mingrui Yang, William Holden, Ahmet Hakan Ok, Sameed Khan, Jeehun Kim, Carl Winalski, Naveen Subhas, Vipin Chaudhary, and Xiaojuan Li. *Bioengineering* 2024, 11, 526.

Inpainting MRI for unsupervised knee bone marrow edema-like lesion segmentation using conditional diffusion models, Andrew Seohwan Yu, Richard Lartey, William Holden, Ahmet Hakan Ok, Jeehun Kim, Carl Winalski, Naveen Subhas, Vipin Chaudhary, and Xiaojuan Li, presented at the Society of Photo-Optical Instrumentation Engineers (SPIE) Imaging Informatics for Healthcare, Research, and Applications, San Diego, February 20, 2024

Novel Unsupervised Segmentation of Bone Marrow Edema-Like Lesions using Bayesian Conditional Generative Adversarial Networks, Andrew Seohwan Yu, Sibaji Gaj, William Holden, Richard Lartey, Jeehun Kim, Carl Winalski, Naveen Subhas, and Xiaojuan Li, *Proceedings of the International Society for Magnetic Resonance in Medicine, (ISMRM) Scientific Meeting and Exhibition, ISSN 1545-4428 (Online), May 19, 2023*

Teaching

Pennsylvania State University

- Full-time instuctor
 - Artificial Intelligence (Python)
 - Technical Game Development (Unreal Engine 4)
 - Game Development Project (Unreal Engine 4)
 - Applications Programming (Android, Kotlin)
 - Operating Systems and Programming (C, UNIX)
 - Introduction to Programming Techniques (C++)

Erie, PA

2017 - 2021

Spring 2021

Spring 2021

Fall 2020

Spring 2020

Fall 2017 - Spring 2019

Fall 2017 - Summer 2021

Cleveland State University

- Graduate Teaching Assistant
 - Introduction to Engineering Design (C, Arduino)
 - Introduction to Programming (Java)

Cleveland, OH

2016 - 2017

Spring 2017

Fall 2016